WELDING PROCEDURE SPECIFICATION

WPS - 2010-8-A **REV. NO.:** 0 **DATE:** 9/8/2005 ****APPLICABILITY****

WELDING PROCESS: GTAW-A **and** GTAW-A **ASME:** X **AWS:** **OTHER:**

SUPPORTING PQR: 2010-8-A

JOINT: This WPS shall be used in conjunction with the General Welding Standards (GWS) and Welding Fabrication Procedure (WFP) sections and criteria for joint details, repairs, NDE, inspection etc.

Weld Joint Type: Square butt	**Class:**		Full penetration
See GWS 1-06 and WFP's for joint details	**Preparation:**		Machined
Root Opening: 0"	**Backing:**		Gas
Backgrind root: N/A	**Backing Mat.:**		N/A
Bkgrd Method: N/A	**GTAW Flux:** N/A	**Backing Retainer:**	N/A

FILLER METALS: **Class:** N/A **and** N/A

A No: N/A **SFA Class:** N/A **and** N/A **F No:** N/A **and** N/A **Size:** --- --- --- ---

Insert: N/A **Insert Desc.:** N/A **Weld Metal Thickness Ranges:**

Flux: Type: N/A **Size:** N/A

Filler Metal Note: See note in comments section.

AWS Root Pass:	0	**thru**	0
AWS Balance:	0.000	**thru**	0.000
ASME Root Pass:	0.035	**thru**	0.124
ASME Balance:	0.035	**thru**	0.124

BASE MATERIAL **P No.** 8 **Gr No.** 1 **to: P No.** 8 **Gr No.** 1

Spec. SA-213/249 316L/304 **Grade:** All **to: Spec.** SA-213/249 316L/304 **Grade:** All

Qualified Pipe Dia. Range: ≥ **AWS:** 0 **ASME:** 0.125

Qualified Thickness Range: **AWS:** 0.000 **thru** 0.000 **ASME:** 0.035 **thru** 0.124

QUALIFIED POSITIONS: **AWS:** N/A **ASME:** All **Vert. Prog.:** Up/Dn

Preheat Min. Temp.:	70 **°F**	**GAS: Shielding:**	Argon*	**or**	
Interpass Max. Temp.:	350 **°F**	**Gas Composition:**	100 / / **%**	/ /	**%**
Preheat Maintenance:	N/A **°F**	**Gas Flow Rate cfh:**	10 **to** 20	**to**	
PWHT: Time @ °F Temp.	N/A	**Backing Gas/Comp:**	Argon**	100 **%**	
Temp. Range:	0 **°F**	**Backing Gas Flow cfh:**	5 **to** 30		
to	0 **°F**	**Trailing Gas/Comp:**	N/A	0 **%**	

APPROVAL: Signatures on file at ENG **DATE:** 9/8/2005

WPS NO: 2010-8-A

WELDING CHARACTERISTICS:

Current: DCEN **and** DCEN **Tungsten Type:** EWTh-2 **Transfer Mode:** N/A

Ranges: Amps 21 **to** 0 **Tungsten Dia.:** **Pulsing Cycle:** 22 **to** 46

Volts 7 **to** **Background Current:** N/A

Fuel Gas: N/A **Flame:** N/A **Braze temp. °F** N/A **to** N/A

WELDING TECHNIQUE: **For fabrication specific requirements sucg as fittup, cleaning, grinding, PWHT and inspection criteria refer to Volume 2, Welding Fabrication Procedures**

Technique: Automatic **Cleaning Method:** SS Wool/Abrasive cloth

Single Pass or Multi Pass: S **Stringer or Weave bead (S/W):** S **Oscillation:** N/A

GMAW Gun Angle °: 0 **to** 0 **Forehand or Backhand for GMAW (F/B):** N/A

GMAW/FCAW Tube to work distance: N/A

Maximum K/J Heat Input: N/A **Travel speed:** **Gas Cup Size:** 2

PROCEDURE QUALIFIED FOR:

Charpy "V" Notch: N/A **Nil-Ductil Transition Temperature:** N/A **Dynamic Tear:** N/A

Comments: *Pre-purge time out = 20 - 30 sec.
** Post-purge time out = 20 - 30 sec.
Note from Filler Notes: Fittings or tube ends that exihibit a machined provision for additional metal for "filler metal" are also included in this WPS.

Weld Layer	Manual Process	Filler Metals	Size	Amp Range	Volt Range	Travel/ipm	Nozzel Angle	Other
1	GTAW-A	N/A	---	21 **to** 46	7 **to** 8.2	15 **to** 17	0 **to** 0	
2	GTAW-A	N/A	---	21 **to** 46	7 **to** 8.2	**to**		
3	GTAW-A	N/A	---	0 **to** 0	0 **to** 0	**to**		
4	GTAW-A	N/A	---	0 **to** 0	**to**	**to**		
5								
6								

REM. * Weld layers are representative only - actual number of passes and layer sequence may vary due to variations in joint design, thickness and fitup.